

What is claimed is:

1. A plasma treatment apparatus comprising:
 - a vacuum vessel that houses an article to be treated
 - 5 and into which a treatment gas is introduced;
 - a lower electrode that is provided inside said vacuum vessel and onto which is placed the article to be treated;
 - an upper electrode main body that is provided above
 - 10 said lower electrode to form a plasma region in said vacuum vessel, said upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region;
 - 15 an upper electrode cover that is joined to a lower surface of said upper electrode main body, said upper electrode cover having formed therein a hole at a location corresponding to the opening of said upper electrode main body; and
 - 20 a window member fitted in the hole of said upper electrode cover.

2. An upper electrode cover for a plasma treatment apparatus, the plasma treatment apparatus comprising a vacuum vessel that houses an article to be treated and
- 25 into which a treatment gas is introduced a lower electrode that is provided inside the vacuum vessel and onto which is placed the article to be treated, and an upper electrode main body that is provided above the lower electrode to form a plasma region in the vacuum
- 30 vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region,

wherein the upper electrode cover has formed therein

- 35 a hole in which a window member is to be fitted, at a

location corresponding to the opening in the upper electrode main body, the hole having a shape complementary to a shape of the window member.

3. An upper electrode cover as claimed in claim 2,
5 wherein the hole has a lower portion having a reduced diameter and an upper portion having an increased diameter.

4. An upper electrode cover as claimed in claim 2, wherein the hole opens into the plasma region.

10 5. An upper electrode cover as claimed in claim 2, which is made of quartz.

6. An upper electrode cover window member for a plasma treatment apparatus, the plasma treatment apparatus comprising a vacuum vessel that houses an
15 article to be treated and into which a treatment gas is introduced a lower electrode that is provided inside the vacuum vessel and onto which is placed the article to be treated, an upper electrode main body that is provided above the lower electrode to form a plasma region in the
20 vacuum vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region, and an upper electrode cover that is joined to a lower surface
25 of the upper electrode main body,

wherein the upper electrode cover window member comprises a transparent member that has at least in part a shape complementary to a shape of a hole formed in the upper electrode cover at a location corresponding to the
30 opening in the upper electrode main body such that the upper electrode cover window member can be fitted in the hole.

7. An upper electrode cover window member as claimed in claim 6, wherein the hole has a lower portion
35 having a reduced diameter and an upper portion having an

increased diameter, and the upper electrode cover window member has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole, respectively.

8. An upper electrode cover window member as claimed in claim 6, wherein the hole has a lower portion having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member presents a vertically symmetrical shape having a lower portion having a reduced diameter, an intermediate portion having an increased diameter, and an upper portion having a reduced diameter that can be fitted in the lower portion of the hole, the opening in the upper electrode main body, and the upper portion of the hole, respectively.

9. An upper electrode cover window member as claimed in claim 6, which is made of quartz.

10. An upper electrode cover window member as claimed in claim 6, which is made of sapphire.